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ABSTRACT

The paper examines occupational mobility or fluidity among scientists in the Soviet Union. The problem of fluidity is inseparably linked with the problem of adaptation to the work organization. The occupational stability of workers is affected by the type and conditions of their work, which are determined by a complex of objective and subjective factors and their interaction. Objective factors include: type of scientific institution and rank in the profession, length of service, and age. A combined analysis of these factors reveals that the highest stability index is in the 40-45 age group and the lowest in the 25-30 age group. Subjective factors influencing worker stability include wishing to realize career plans by transferring to another institution, questions of promotion and pay, and working conditions. Men's and women's motives for transfer are identical, although their coincidence of motives varies. Correlation analysis shows that stability depends most on age, nature of work with respect to ability, and the prospect of promotion. In sum, efforts should be made to eliminate excessive occupational mobility among scientists in the interest of increasing scientific efficiency. (JR)

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A study into the reasons for staff changes in the scientific community. Many want advancement or an opportunity to carry out more interesting work, others are simply dissatisfied in general. It was found that when scientific staff reach a certain age their desire for change decreases, since, presumably, they are enjoying their work and have reached their goal.

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The scientific and technical revolution increases the dynamics of staff, especially scientific ones. Therefore, the classification of types of movement of scientific staff, studying the reasons for this, the motives, trends and forecasting the dynamics of staff take on a special significance for the administration of science.

The movement of scientific staff can be studied in various aspects and by various criteria (see [1]). In this article, we shall look at the experience in studying nonplanned, natural mobility, the so-called fluidity, more accurately the potential fluidity and the extent of this on the change of occupation. Of course, actual and potential fluidity do not fully coincide, however, the study of the latter has its advantages when elucidating the real reasons and motives.

A number of investigations have been carried out in the past years on the fluidity of industrial staff (see [2]). However, the problems of fluidity of scientific workers have scarcely been studied[1]. At the same time, the study of this problem is very important. It is sufficient to say that when changing occupation, the adaptation of a scientist requires a longer period than for a less qualified worker.

[1] Among many works of a methodological nature on the problem of mobility of scientific staff, attention must be drawn to work [3].

The transfer of a scientific worker to other work (on his own initiative) is preceded by a predicted evaluation of the position and role in the new group. The corresponding aims and motives are formed on the basis of this evaluation. We consider the measurement of the extent of purpose of mobility as one of the methods of measuring the level for stabilizing staff, their attitudes to work and the social-professional adaptation in enterprises or institutions. The attitude of a scientist to his work, like the purpose of mobility, has a forecasting effect, therefore the study of these factors can be one of the methods for forecasting the probable fluidity.

The problem of fluidity is inseparably linked with the problem of adaptation. If a worker does not adapt himself in an organization, then, as a rule, sooner or later, he transfers to other work.

In an anonymous questionnaire, which was used during an investigation carried out in departments of the Leningrad Scientific Research Institute in 1968[1], was the secret question: "Do you want to transfer to other work?" There were four different variations of answer.

-- I want to remain (state why).

-- I shall remain, if I achieve what I wish to do (state what exactly).

-- I am thinking of leaving, but I have not made any arrangements.

-- I have firmly decided to move and am looking for other work.

Fifty-five percent of those people who answered said that they wanted to remain at their present work; approximately 19% wrote that they would remain if they achieved their aims; about 24% thought of moving, but had not made any arrangements whatsoever; 2.0% had definitely decided to transfer and were looking for other work. The stability index is 3.2 (using a four point system).

[1] Approximately 1000 scientific workers were involved in the questionnaire.

The stability of a worker is affected by the type and conditions of his work, which are determined by a complex of objective and subjective factors and their interaction.

Among the objective factors, first of all, are those such as the type of scientific institution and rank in the profession (post). Hence, the stability level of workers is higher in academic institutes than in departmental ones.

According to an official criterion, the stability of directors of laboratories (sectors) and senior scientific workers and some other official groups of scientific workers is higher than average.

There is a strongly pronounced dependence between the level of stability of a worker and his length of service.

In fact, on the total evidence of those questioned, the average length of service of scientific work is 9.1 years and work in a given institution -- 8.2 years. At the same time, those who want to remain in their present position, have a corresponding length of service of 10.4 years and 9.1 years, that is, higher than average. This is natural, since they have already passed through the "critical period" of adaptation. It is shown, that for those who have a length of service from 1 year to 3 years and wish to remain, the percentage is 39, and among those who have a length of service of 10 years and above is 68.4%.

A demographic analysis of the problems of fluidity of staff confirmed that young people are the most dynamic group. This can be completely explained by the natural desire of young scientific workers to be employed in several institutes, in order to select interesting work and suitable conditions. But there are reasons of a completely different nature -- failures in placing specialists after leaving a higher educational institution, unsolved problems in organization and the payment of young scientists and engineers.

As a result of this, the highest stability index is in the 45-50 year age group, the lowest in the 25-30 years age group.

If, in the first group, the number of those wishing to remain in their present position is 83%, in the second it is only 38%. Consequently, with age, the stability index tends to increase. The essence of this dependence, of course, is not in age itself, but in the status and level of adaptation which are acquired over the years. The stability index rises above the average after 35 years.

Among those problems which arise from columns of figures, the most urgent ones are those of young scientists. The average age of the sampling population was 27. This coincides with the age for greatest mobility. Young people (up to 35 years old) make up for more than half of the sampling population, and of them, less than a half wish to remain at their present occupation. Does this not lead to the useless expenditure of intellectual and emotional drive, time and state resources? One thing is certain, here enormous reserves for increasing scientific efficiency are being held back.

What gives this number of scientific workers the urge to change occupation? Is it that they are not satisfied with the profession or speciality itself, or the working conditions of the initial collective or institute, or is it something else?

First of all, it was found that the majority of those wishing to change occupation is linked with the realization of their plans by transferring to another institute. The number of those who were oriented to transfer to another institute was three times greater than those who wished to realize their ambitions of "mobility within an institute." However, the ratio of these groups is not identical in all institutes.

Data of the interrogation characterizes the general structure of basic factors which cause the desire to transfer to other work.

In extent, all these factors can be differentiated as highly significant (for example, the possibility of promotion and pay), of medium significance (attitude to the manager, sanitary and hygienic working conditions, etc.), and of little significance (dissatisfaction with the profession and the speciality, attitude to colleagues, etc.).

It is characteristics that none of these factors collected the majority of votes. This is explained by the absence of no single reason for mobility. At the same time, analysis of the most important factors shows that the lack of order in the promotion system of staff and pay is the main reason for dissatisfaction, and becomes the reason for "excessive" mobility.

Having studied all the motives, it can be said, that dissatisfaction with working conditions is considerably higher than the character of the work itself.

There is a clearly expressed correlation connection between the stability index and the level of pay. However, in the first place, it would be untrue to suppose that the least stable workers are those who are paid relatively less. Secondly, the connection between these factors is statistical and probable. Hence, looking at the distribution of stability index, depending on the pay, we observed an unexpected "slump' of stability on the salary scale of 250-299 rubles, and looking at the distribution of those wishing to remain in their present occupation, we observed a relative reduction of stable workers at a pay scale of 120-149 rubles per month.

To understand this, one must take into account that the stability level is affected by a number of interacting factors, not just by pay alone. Apart from this, one and the same pay scale can be evaluated by different people in different ways, or even in different stages, by one and the same person.

Correlation analysis showed that dissatisfaction with pay and prospects for advancement are most common among those who believe that the true criteria of scientific work are those values, such as promotion and development of new ideas, originality of research, etc., and among those who are oriented to an amount of printed work, etc.

Analysis of material of the sampling interrogation questionnaire of scientific workers of the Electromechanical Institute, by factor and correlation analysis, showed that when there was a strong interrelation between the stability index of scientific workers and the nature of their work: the greater the time spent by a scientific worker on work not commensurate with his qualification, the lower was his stability index in that position. These conclusions fully agree with the orientation of scientists to a type of work as a basis for the motivation of activity of the scientist, etc.

There is also a strong connection between the post and dissatisfaction factors. Hence, analysists are most dissatisfied with their promotion prospects and disparity of work to their qualifications; junior research workers -- with the prospective promotion and pay scale; directors of laboratories (sectors) -- with the level of research in the institution on interesting scientific subjects, and their relationships with the manager, etc.

Continuing the analysis, we looked at the dependence between the year for graduating from a higher educational institution and the motives for transferring to other work.

For this, first and foremost, we shall group the sampling population in large blocks, according to the year when they graduated from a higher educational institution:

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I. 1919-1938 -- senior

II. 1939-1958 -- middle

III. 1959-1968 -- young

The seniors, most of all, are dissatisfied with the disparity between the work they do and their qualifications, and also their relationships with the manager; the middle -- the prospects for promotion and disparity between the work they do and their qualifications; the young -- with their salary, their prospects for vertical mobility, the disparity between the work they do and their qualifications and also, to a considerable degree, the subject of research.

A direct connection was noticed between the length of service after graduating from a higher educational institution and the orientation towards another organization: the less the length of service, the fewer were those wishing to remain at the given institute. Consequently, young people believe that their interests can only be served in other institutes.

Men's and women's motives for transfer are identical. However, more detailed analysis showed that the coincidence of motives is by no means complete. Men are more interested in the content and nature of the work (subject, according to qualification) and pay, women in sanitary and hygienic working conditions. Women are least of all identified with their profession.

Data, obtained by correlation analysis, was made more specific and tested by methods of factor analysis on material of individual scientific research institutes (according to 13-15 tests), which showed that there was a strong connection between the desire to change one's occupation and those features of the actual position of a scientific worker, as real possibilities of change to other work, the degree of conformity between the subject of research and his speciality and the structure of expenditure of work time, etc.

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Dissatisfaction with promotion prospects is one of the deciding factors for work dissatisfaction. In this connection, let us look at some data which characterizes vertical mobility. An average length of service in a post held is 5.2 years, including for men -- 5 years, for women -- 5.5 years. The length of service for doctors and candidates of science is greater than workers without scientific degrees. More than 40% of workers hold a given post for up to 3 years and only 12% -- more than 15 years.

Consequently, the time for remaining in a post is relatively small. Apparently, the problem is that young scientific workers, although they have recently been employed as analysists, engineers and research workers, however, believe that the chances of promotion are very limited. Their impatience increases even more because they believe that the level, and many of them the method of payment for their work is unfair, but they do not see any other means of advancement except for promotion.

The implementation of economic reforms, the expansion of rights of managers of scientific institutions in regulating pay will make it possible to solve pressing problems on the organization and pay for scientific workers. The reflection of the status on the growth and achievements of a scientific worker must be rapid and flexible.

Material studied shows that among the ways in which staff move one must point out those which objectively help scientific and technical progress (a change of speciality and situation linked with a transfer towards a new scientific direction). This type of mobility (which is provided for by the plan and not provided by it) must be stimulated. However, there is still a very great proportion of "excessive mobility," cause by unsolved problems in labor organization and the advancement of scientific workers. The limination of the reasons for this type

of mobility of staff is a very important factor in increasing scientific efficiency.

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